

IN THE CLAIMS

1. (currently amended) A device for securing a spinal rod to the spine comprising:

a) a head portion having a channel extending therethrough configured to receive a spinal rod;

b) a locking cap configured to engage an interior camming surface of the channel and an exterior surface of the spinal rod upon rotation of the locking cap relative to the head portion through a 90° arc to secure the position of the head portion relative to the spinal rod, wherein the locking cap has discontinuous opposed arcuate engagement flanges; and

c) a fastener portion depending from the head portion.

2. (original) A device as recited in claim 1, wherein the channel is bounded by opposed side walls.

3. (original) A device as recited in claim 2, wherein each of the opposed side walls has an arcuate engagement slot defined therein.

4. (currently amended) A device as recited in claim 3, wherein ~~the locking cap has opposed~~ discontinuous opposed arcuate engagement flanges are configured for reception in the opposed arcuate engagement slots of the head portion upon rotation of the locking cap relative to the head portion.

5. (original) A device as recited in claim 4, wherein the locking cap is configured for rotation between an initial position in which the arcuate engagement flanges are 90° out of phase with the arcuate engagement slots, an intermediate position in which the arcuate engagement flanges are 45° out of phase with the arcuate engagement slots and a locked position in which the arcuate engagement flanges are in phase and intimately engaged with the arcuate engagement slots.

6. (currently amended) A device as recited in claim 5, wherein ~~the~~ a bottom surface of the locking cap includes an

elongate recess oriented to accommodate a spinal rod when the locking cap is in ~~an~~the initial position.

7. (original) A device as recited in Claim 6, wherein the bottom surface of the locking cap includes an orthogonal recess which intersects the elongate recess at a 90° angle to accommodate a spinal rod when the locking cap is in a locked position.

8. (currently amended) A device as recited in Claim 6, wherein the bottom surface of the locking cap includes at least one transverse ~~recess~~recesses which intersects the elongate recess at a 45° angle to accommodate a spinal rod when the locking cap is in ~~an~~the intermediate position.

9. (original) A device as recited in Claim 1, wherein the locking cap has a cylindrical head which includes a hexagonal bore for receiving a work implement.

10. (canceled)

11. (previously presented) A device as recited in claim 4, wherein the opposed engagement slots are each defined in part by inclined slot surfaces, with the angle of the inclined slot surface of one engagement slot being opposite that of the opposed engagement slot, and wherein the opposed engagement flanges are each defined in part by inclined flange surfaces, with the angle of the inclined flange surface of one engagement flange being opposite that of the opposed engagement flange.

12. (original) A device as recited in claim 11, wherein the inclined slot surfaces and the inclined flange surfaces are angularly tapered to complement each other.

13. (original) A device as recited in claim 1, wherein the fastener portion is configured as a screw.

14. (original) A device as recited in Claim 1, wherein the fastener portion is configured as a hook.

15. (currently amended) A device for securing a spinal rod to the spine comprising:

a) a head portion having a channel extending therethrough defining a vertical axis and a horizontal axis, and configured to receive a spinal rod along the horizontal axis;

b) a locking cap configured for reception by the head portion along the vertical axis of the channel and adapted to engage an interior surface of the channel and an exterior surface of the spinal rod upon rotation of the locking cap about the vertical axis through a 90° arc from an unlocked position to a locked position to secure the position of the head portion relative to the spinal rod; and

c) a fastener portion depending from the head portion, wherein the fastener portion is movable relative to the head portion when the locking cap is in the unlocked position and the fastener portion is fixed relative to the head portion when the locking cap is in the locked position.

16. (currently amended) A device for securing a spinal rod to the spine comprising:

a) a head portion having a channel extending therethrough for receiving a spinal rod;

b) a locking cap having discontinuous opposed engagement flanges configured to cooperate with an interior camming surface of the channel and an exterior surface of the spinal rod upon rotation of the locking cap relative to the head portion between an unlocked position and a locked position through a 90° arc to secure the position of the head portion relative to the spinal rod; and

c) a fastener portion depending from the head portion.

17. (original) A device as recited in claim 16, wherein the locking cap is configured for rotation from the unlocked position to a partially locked intermediate position.

18. (currently amended) A device as recited in claim 16, wherein the channel is bounded by opposed side walls each having

an arcuate engagement slot defined therein, and wherein the ~~locking cap has~~ discontinuous opposed ~~arcuate~~ engagement flanges are configured for reception in the opposed arcuate engagement slots upon rotation of the locking cap into the locked position.

19. (currently amended) A device as recited in claim 17, wherein the locking cap has a bottom surface which includes an elongate recess oriented to accommodate a spinal rod when the locking cap is in the unlocked position, an orthogonal recess which intersects the elongate recess at a 90° angle to accommodate a spinal rod when the locking cap is in the locked position, and at least one transverse ~~recess~~recesses which intersects the elongate recess at a 45° angle to accommodate a spinal rod when the locking cap is in the partially locked intermediate position.

20. (original) A device as recited in claim 18, wherein the opposed engagement slots are each defined in part by inclined slot surfaces, with the angle of the inclined slot surface of one engagement slot being opposite that of the opposed engagement slot, and wherein the opposed engagement flanges are each defined in part by inclined flange surfaces, with the angle of the inclined surface of one engagement flange being opposite that of the opposed engagement flange.

21. (canceled)

22. (original) A device as recited in claim 16, wherein the fastener portion is configured as a screw.

23. (original) A device as recited in claim 16, wherein the fastener portion is configured as a hook.

24. (currently amended) A device for securing a spinal rod to the spine comprising:

a) a head portion having a channel extending therethrough for receiving a spinal rod, the channel being bounded by opposed side walls, each side wall having an arcuate engagement slot defined therein;

b) a locking cap having a bottom surface configured to accommodate a spinal rod extending through the channel of the head portion and including opposed arcuate engagement flanges configured for cammed reception in the opposed arcuate engagement slots of the head portion upon rotation of the locking cap relative to the head portion to secure the position of the head portion relative to the spinal rod, wherein each of the opposed arcuate engagement flanges extends only partially around the locking cap; and

c) a fastener portion formed monolithic with and depending from the head portion.

25. (currently amended) A device as recited in claim 24, wherein the locking cap is configured for rotation between an initial position in which the arcuate engagement flanges are ~~90° out of phase~~ not in contact with the arcuate engagement slots, an intermediate position in which the arcuate engagement flanges are ~~45° out of phase~~ partially in contact with the arcuate engagement slots and a locked position in which the arcuate engagement flanges are ~~in phase and intimately~~ fully engaged with the arcuate engagement slots.

26. (currently amended) A device as recited in claim 24 25, wherein the bottom surface of the locking cap includes a first recess oriented to accommodate a spinal rod when the locking cap is in the initial position.

27. (original) A device as recited in claim 26, wherein the bottom surface of the locking cap includes a second recess which intersects the first recess at a first angle to accommodate a spinal rod when the locking cap is in the locked position.

28. (currently amended) A device as recited in claim 26 27, wherein the bottom surface of the locking cap includes a third recess which intersects the first recess at a second angle to accommodate a spinal rod when the locking cap is in the

intermediate position.

29. (original) A device as recited in claim 26, wherein the first recess is an elongate recess.

30. (original) A device as recited in claim 27, wherein the second recess intersects the first recess at a 90° angle.

31. (original) A device as recited in claim 28, wherein the third recess intersects the first recess at a 45° angle.

32. (original) A device as recited in claim 24, wherein the channel is defined in part by a hemi-cylindrical seat for accommodating a cylindrical spinal rod.

33. (original) A device as recited in claim 24, wherein the locking cap includes a cylindrical head having a hexagonal bore defined therein for receiving a work implement.

34. (original) A device as recited in claim 33, wherein the opposed side walls of the head portion include opposed arcuate notches for accommodating the cylindrical head of the locking cap.

35. (original) A device as recited in claim 24, wherein an arcuate appendage projects upwardly from each side wall of the head portion to engage an annular recess formed in an upper portion of the locking cap.

36. (canceled)

37. (original) A device as recited in claim 24, wherein the opposed engagement slots are each defined in part by inclined slot surfaces, with the angle of the inclined slot surface of one engagement slot being opposite that of the opposed engagement slot, and the opposed engagement flanges are each defined in part by inclined flange surfaces, with the angle of the inclined flange surface of one engagement flange being opposite that of the opposed engagement flange.

38. (canceled)

39. (original) A device as recited in claim 24, wherein the fastener portion is configured as a bone screw.

40. (currently amended) ~~A device as recited in claim 24,~~ for securing a spinal rod to the spine comprising:

a) a head portion having a channel extending therethrough for receiving a spinal rod, the channel being bounded by opposed side walls, each side wall having an arcuate engagement slot defined therein;

b) a locking cap having a bottom surface configured to accommodate a spinal rod extending through the channel of the head portion and including opposed arcuate engagement flanges configured for cammed reception in the opposed arcuate engagement slots of the head portion upon rotation of the locking cap relative to the head portion to secure the position of the head portion relative to the spinal rod; and

c) a fastener portion formed monolithic with and depending from the head portion, wherein the fastener portion is configured to be a bone hook.

41-68 (canceled).

69. (new) A device as recited in claim 1, the locking cap being rotatable between an unlocked position and a locked position, wherein the fastener portion is movable relative to the head position when the locking cap is in the unlocked position and the fastener portion is fixed relative to the head portion when the locking cap is in the locked position.

70. (new) A device as recited in claim 16, wherein the fastener portion is movable relative to the head portion when the locking cap is in the unlocked position and the fastener portion is fixed relative to the head portion when the locking cap is in the locked position.

71. (new) A device for securing a spinal rod to the spine comprising:

a) a head portion defining a central axis and having

a channel extending therethrough oriented perpendicular to the central axis and configured to receive a spinal rod;

b) a locking cap including an upper portion configured to engage an interior surface of the head portion and a lower portion having an elongated recess configured to engage an exterior surface of a spinal rod received by the channel to secure the position of the head portion relative to the spinal rod upon rotation of the upper portion relative to the lower portion about the central axis of the head portion, wherein the upper portion and the lower portion of the locking cap are coupled together by an axial post that facilitates relative rotational movement of the upper portion relative to the lower portion; and

c) a fastener portion depending from the head portion to engage the spine and mounted for angular movement relative to the central axis of the head portion.